



## **SMA Panel Discussion**

### **Probable Use of a Neuroweapon to Affect Personnel of US Embassy in Havana: Findings, Pathology, Possible Causes, and Disruptive Effects**

**Booklet**  
**7 September 2018**  
**1100-1200 EDT**

**Dial (866) 712-4038;  
Passcode 37250264#**

Strategic Multi-Layer Assessment (SMA) provides planning support to Commands with complex operational imperatives requiring multi-agency, multi-disciplinary solutions that are NOT within core Service/Agency competency. Solutions and participants are sought across USG and beyond. SMA is accepted and synchronized by Joint Staff/J-39 DDGO and executed by ASD (EC&P).

# Agenda

**Panel Description:** This teleconference will present findings and implications of biomedical examination of several personnel of the US Embassy in Havana Cuba who have incurred apparent brain injury following some form of environmental insult or intentional attack. The types and extent of pathological damage is suggestive of repetitive exposure to some form of toxic agent and/or ultrahigh sonic or electromagnetic pulse device. The use of such a neuroweapon represents an emerging threat for international biosecurity. The speakers for this discussion will include:

Dr. Carey Balaban (University of Pittsburgh)  
Dr. Diane DiEuliis (National Defense University)  
Dr. James Giordano (Georgetown University)  
Dr. Michael Hoffer (University of Miami)

The panelists will discuss the following topics:

**Dr. Michael Hoffer** will present the medical findings in a group of individuals exposed initially in one geographic area. This symptom pattern will be compared and contrasted from other relevant acquired neurosensory disorders.

**Dr. James Giordano** will present an overview of possible pathologic processes involved in the types of insult/trauma observed in cases of "embassy encephalopathy" and propose potential mechanisms and causes for such effects.

**Dr. Carey Balaban** will present empirical studies that provide insights into mechanistic bases for effects on the inner ear and other intracranial contents and describe a fieldable test technology that can objectively discriminate (1) control subjects, (2) individuals with an acute concussion and (3) affected individuals from Havana.

**Dr. Diane DiEuliis** will discuss how neuroweapons should be considered for the potential as "weapons of mass disruption" and discuss possible scenarios and implications of their use.

# Speaker Biographies

## **Dr. Carey Balaban (Professor of Otolaryngology, School of Medicine, and Director of the Center for National Preparedness, University of Pittsburgh)**

Dr. Carey Balaban is Professor of Otolaryngology in the School of Medicine, with secondary appointments in Neurobiology, Communication Sciences and Disorders, and Bioengineering and Director of the Center for National Preparedness. He earned his bachelor's degree in History at Michigan State University and his Ph.D. degree in Anatomy from the University of Chicago.

After completing postdoctoral training at the University of Tokyo, Dr. Balaban served as an Assistant Professor in Medicine at the Pennsylvania State University before he joined the University of Pittsburgh faculty as an Assistant Professor in the School of Medicine in 1988, where he was promoted to Associate Professor in 1993 and to full Professor in 2000. He has also served a three-year term as Vice Provost for Faculty Affairs.

Dr. Balaban's research program has been supported with funding from a variety of sources including the NIH, NASA, the Office of Naval Research and several other agencies and corporations. He has extensive experience in conducting multidisciplinary, cross-cutting research in biomedical sciences, engineering and social sciences and has participated in the emerging fields of augmented cognition and neural engineering. His over-riding interest has been formulation of mathematical models, heuristic models and teleological approaches to interpret data from basic science experiments in terms of behavioral and clinical phenomena. Using this approach, he has examined the interplay between neurological and psychological features of co-morbid aspects of balance disorders, migraine and anxiety disorders. His recent work is extending the implications of these models to analogous features of mild traumatic brain injury, acoustic trauma and post-traumatic stress disorder, including work in the nascent field of mass spectrometric histological imaging. Recent work is exploring biological effects of directed energy exposures. He has also participated in developing patented technologies to gauge situational awareness and cognitive engagement from postural orienting responses and decision support software for responses to mass casualty events. In addition to more than 190 peer-reviewed basic research and scholarly articles and two issued patents, Dr. Balaban is an author of two books on seventeenth century medicine.

## **Dr. Diane DiEuliis (Senior Research Fellow, Center for the Study of Weapons of Mass Destruction, National Defense University)**

Areas of Expertise: Biodefense; Biosecurity; Deterrence (Neuroscience & Neurobiology); Emergency Management; Ethics & Leadership (Life Sciences/Human Subjects); WMD Preparedness/Response

Dr. Diane DiEuliis is a Senior Research fellow at National Defense University. Her research areas focus on emerging biological technologies, biodefense, and preparedness for biothreats. Dr. DiEuliis also studies issues related to dual use research, disaster recovery research, and behavioral, cognitive, and social science as it relates to important aspects of deterrence and preparedness.

Prior to joining NDU, Dr. DiEuliis was the Deputy Director for Policy, (and served as Acting Deputy Assistant Secretary for Policy and Planning) in the Office of the Assistant Secretary for Preparedness and Response (ASPR), U.S. Department of Health and Human Services. While there, she coordinated policy in support of domestic and international health emergency preparedness and response activities, including implementation of the Pandemic All-Hazards Preparedness Act, the National Health Security Strategy, and the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE).

From 2007 to 2011, Dr. DiEuliis was the Assistant Director for Life Sciences and Behavioral and Social Sciences in the Office of Science and Technology Policy (OSTP) in the Executive Office of the President. During her tenure at the White House, she was responsible for developing policy in areas such as biosecurity, synthetic biology, social and behavioral science, scientific collections, ethics, STEM education, and biotechnology. Dr. DiEuliis also worked to help coordinate agency response to public health issues such as the H1N1 flu.

Prior to working at OSTP, Dr. DiEuliis was a program director at the National Institutes of Health (NIH), where she managed a diverse portfolio of neuroscience research in neurodegenerative diseases. She completed a fellowship at the University of Pennsylvania in the Center for Neurodegenerative Disease Research and completed her postdoctoral research in the NIH Intramural research program, where she focused on cellular and molecular neuroscience.

Dr. DiEuliis has a Ph.D. in biology from the University of Delaware, in Newark, Delaware.

Publications:

DiEuliis, D. Opinion: Specimen collections should have a much bigger role in infectious disease research and response. PNAS vol. 113, no.1, Jan. 2016.

DiEuliis, D. The Role of Scientific Collections in Scientific Preparedness. Emerging Infectious Diseases Vol. 21, no. 8 August 2015. also see: Scientific Collections and Emerging Infectious Diseases

DiEuliis, D, contributing author and co-editor. Social and Cognitive Neuroscience Underpinnings of ISIL Behavior and Implications for Strategic Communication, Messaging, and Influence. Editors Drs. James Giordano and Diane DiEuliis (May 2015).

A New Information Paradigm? From Genes to "Big Data" and Instagram to Persistent Surveillance...Implications for National Security: 8th Annual SMA Conference (Nov 2014).

D. DiEuliis, contributing author. Asan Report: Science and Technology to Prevent and Respond to CBRN Disasters: ROK and US Perspectives. Edited by Park Jiyong (July 2014).

Topics in the Neurobiology of Aggression: Implications to Deterrence (Feb 2013). Editors Dr. Diane DiEuliis and Dr. Hriar Cabayan.

National Security Challenges: Insights from Social, Neurobiological, and Complexity Sciences (2012). Edited by: A. Astorino-Courtois, H. Cabayan, W. Casebeer, A. Chapman, D. DiEuliis, C. Ehlschlaeger, D. Lyle & C. Rice.

**Dr. James Giordano (Professor of Neurology and Biochemistry at Georgetown University Medical Center)**

James Giordano PhD is Professor in the Departments of Neurology and Biochemistry, and Chief of the Neuroethics Studies Program of the Pellegrino Center for Clinical Bioethics at the Georgetown University Medical Center, Washington DC, where he also serves as the Co-director of the O'Neill-Pellegrino Program in Brain Science and Global Health Law and Policy. He is Distinguished Visiting Professor of Brain Science and Ethics at the Coburg University of Applied Sciences, Coburg, Germany, and was formerly Fulbright Visiting Professor of Neuroscience and Neuroethics at the Ludwig- Maximilians University, Munich, Germany.

Prof. Giordano currently serves as Chair of the Neuroethics Subcommittee of the IEEE BRAIN Project, and has served as a Fellow and Task Leader of the European Union Human Brain Project Sub-project on Dual Use Neuroscience; as a consultant in brain science, neurotechnology and biological and chemical weapons to the Organisation for Economic Cooperation and Development (OECD); as an appointed member of the Neuroethics, Legal and Social Issues Advisory Panel of the Defense Advanced Research Projects Agency (DARPA), and the Department of Health and Human Services (HHS) Secretary's Advisory Committee for Human Research Protection (SACHRP); and as Senior Science Advisory Fellow of the Strategic Multilayer Assessment Group of the Joint Staff, Pentagon.

His current work focuses upon the international use, misuse and control of brain science as bioweapons, and the engagement of advanced biotechnologies to assess and affect advanced neuro-cognitive capabilities to optimize the training and operational effectiveness of intelligence and warfighter personnel.

A neuroscientist and ethicist with over 30 years' experience in basic and translational research, he is the author of over 285 publications, 7 books, and 15 governmental whitepapers on bioscience, biotechnology and biosecurity. His recent book *Neurotechnology in National Security and Defense: Practical Considerations, Neuroethical Concerns* (CRC Press) is widely used in a number of national defense, security and policy curricula.

In recognition of his ongoing work and achievements, Prof. Giordano has been elected to the European Academy of Science and Arts (EC); the Dana Alliance of Brain Initiatives (DABI), is a Fellow of Royal Society of Medicine (UK ), and has been named as a Distinguished Lecturer of the *Institute for Electrical and Electronics Engineers* (IEEE).

**Dr. Michael Hoffer, FACS (Professor of Otolaryngology and Neurological Surgery, University of Miami)**

Michael Hoffer, MD, FACS is a Professor of Otolaryngology and Neurological Surgery at the University of Miami. Dr. Hoffer assumed these roles after an over twenty-year military career in which he studied mild Traumatic Brain Injury (mTBI) on active duty service members. Dr. Hoffer is a clinician-scientist who performs both basic and clinical research along with his Otolaryngology/Neurotology clinical practice. Dr. Hoffer's lab focuses on traumatic damage to the inner ear and brain. He is authored over sixty papers and has a particular expertise in dizziness and balance disorders as well as neurosensory consequences after mild traumatic brain injury (mTBI). Dr. Hoffer and his collaborators have done pioneering work on pharmaceutical countermeasures for mTBI as well as optimized diagnosis and management of neurosensory disorders seen after mTBI. Dr. Hoffer graduated from UCSD Medical School, was a resident at the University of Pennsylvania, and did a Neurotology Fellowship at the Ear Research Foundation. He has an active clinical practice in otology/neurotology and is very active in the University of Miami's cochlear implant and hearing restoration services.